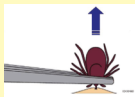


## TICK REMOVAL



- Do not burn or use any substance on tick.
- Do not grasp, squeeze or twist the body of tick.
- Grasp tick close to skin with tweezers.
- Pull tick straight out.
- Use antiseptic on skin afterward.
- Disinfect hands thoroughly.

Always see a physician for possible diagnosis, testing and treatment, especially if tick parts remain after removal.



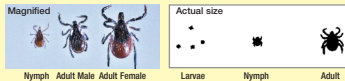
Research, Education, Prevention, & Patient support

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 P.O. Box 1438  
 Jackson, NJ 08527  
 (888) 366-6611 (732) 938-7215 fax  
 Lymeliter@aol.com  
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## TICK IDENTIFICATION

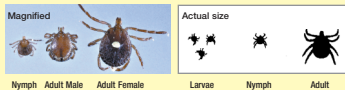
### ***Ixodes scapularis* (deer tick, blacklegged tick)**

**Found:** Northeast, Upper Midwest **Transmits:** Lyme, babesiosis, anaplasmosis, Powassan encephalitis, tick paralysis, tularemia, Bartonella



### ***Amblyomma americanum* (lone star tick)**

**Found:** Eastern U.S. **Transmits:** human monocytic ehrlichiosis, STARI, tularemia, tick paralysis, Rocky Mountain spotted fever



### ***Dermacentor variabilis* (dog tick)**

**Found:** All U.S. **Transmits:** Rocky Mountain spotted fever, tularemia, human monocytic ehrlichiosis



### ***Ixodes pacificus* (blacklegged tick)**

**Found:** Far West **Transmits:** Lyme, babesiosis, anaplasmosis, Bartonella



## MAJOR TICK-BORNE DISEASES

### Lyme Signs & Symptoms

EM (bull's eye) rash at bite site (less than 50%), other types of rashes, rash at other than bite site, flu-like illness.

**Musculoskeletal:** joint/muscle pain in feet, swelling in toes, balls of feet, ankle pain, burning in feet, shin splints, joint pain or swelling, stiffness of the joints, neck or back, muscle pain or cramps that may migrate, neck creaks and cracks, neck stiffness, TMJ. **Reproductive:** testicular pain / pelvic pain, menstrual irregularity, milk production (lactation), sexual dysfunction or loss of libido. **Cardiac/Pulmonary:** chest pain or rib soreness, shortness of breath, heart palpitations, pulse skips, heart block, heart murmur or valve prolapse. **Neurological:** twitching of the face, eyelids or other muscles, headache, tingling, numbness, burning or stabbing sensations, facial paralysis (Bell's palsy), dizziness, poor balance, increased motion sickness, light-headedness, wooziness, difficulty walking, tremor, confusion, difficulty in thinking or with concentration or reading, forgetfulness, poor short term memory, disorientation (getting lost, going to wrong place), difficulty with speech, double or blurry vision, eye pain, blindness, increased floaters, increased sensitivity to light or sound, buzzing or ringing in ears, ear pain, deafness, seizure activity, white matter lesions, low blood pressure. **Neuropsychiatric:** mood swings, violent outbursts, irritability, depression, disturbed sleep (too much, too little, early awakening), personality changes, obsessive/compulsive disorder, paranoia, panic/anxiety attacks, hallucinations. **Gastrointestinal:** nausea or vomiting, difficulty eating, change in bowel function (constipation, diarrhea), gastritis, abdominal cramping, irritable bladder or bladder dysfunction, cystitis. **Other:** fever, sweats, or chills, weight change (loss or gain), fatigue, tiredness, hair loss, swollen glands, sore throat, difficulty swallowing, swelling around the eyes.

### Other Tick-Borne Diseases

One tick bite can give you many different diseases at the same time (co-infections). Treatments vary, examples provided as information only.

**Babesiosis** - Protozoan, babesia microti, WA-1, MO-1; sometimes fatal in elderly or those without spleen. Symptoms include fever, chills, fatigue, headache, muscle pain, sweats & anemia.

**Bartonella-illness** - Bartonella henselae or other spp., can be transmitted by cat bite/scratch or tick bite when atypical presentations may result including visual problems, headaches, enlarged lymph nodes, resistant neurological deficits, new onset of a seizure disorder. Diagnosis by acute and convalescent antibody titers (IFA) and by PCR (DNA) analysis.

**Ehrlichiosis** - Human monocytic ehrlichiosis caused by Ehrlichia chaffeensis (symptoms below).

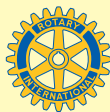
**Anaplasmosis** - caused by Anaplasma phagocytophilum. Symptoms of both ehrlichiosis and anaplasmosis include fever, malaise, headaches, chills, severe muscle aches, vomiting, anemia, lung infection, decreased white blood cells and platelets, elevated liver enzymes, seizures, encephalopathy, meningitis, confusion, ataxia, and cranial nerve palsy. Death can result.

**STARI (southern tick-associated rash illness)** - A Lyme-like disease transmitted by lone star tick, may get rash, other early Lyme symptoms, no test available.

**Rocky Mountain Spotted Fever** - Caused by the bacterium Rickettsia rickettsii. Symptoms include headaches, myalgia, and a characteristic rash usually beginning on wrists, ankles, palms, soles.

**Tularemia** - Caused by a bacterium, Francisella tularensis, Symptoms include headache, chilliness, vomiting, aching pains, fever. Infection site develops into an ulcer, swollen glands, sweating, weight loss, debility.

**Powassan Encephalitis** - Caused by a flavivirus, Powassan (POW). May possibly be transmitted by Ixodes scapularis. Symptoms usually begin suddenly 7-14 days following infection, and include headache, fever, nausea and vomiting, stiff neck, and sleepiness. Later, breathing distress, tremors, confusion, seizures, coma, paralysis, and sometimes death can occur.



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